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EXAMINER

RALIS, STEPHEN J

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3742

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/550,218
Filing Date: September 19, 2005
Appellant(s): MANETTAS ET AL.

Andre Pallapies
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 04 February 2010 appealing from the Office action mailed 27 August 2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:
Claims 12-26 are pending and rejected in the instant case.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

20030164368	Zangari et al.	2-2003
20030164368	Chodacki et al.	9-2003
5416300	Hickl et al.	5-1995

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-26 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant invention, the examiner can find no disclosure utilizing a “voltage amplitude” of a supply voltage as well as values being determined based on a voltage amplitude. The examiner can only find disclosure to the “voltage value” being used. Therefore, the recitation to “a voltage amplitude” is deemed new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13-17 and 20-23 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 and 20 recite the limitation “generating said pulse-duty ratio as a decreasing step function of said recorded amplitude voltage” and variations thereof. It is unclear and uncertain to the examiner to what exact a “decreasing step function of the said recorded voltage amplitude” is and how it correlates to the generation of “said pulse-duty ratio. Furthermore, the preceding claims (12 and 19), recite a “generating a pulse-duty ratio” step and it is unclear and indefinite to how many generations of a

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pulse-duty ratio for a pulsed supplied current are occurring. Therefore, the recitation to limitation "generating said pulse-duty ratio as a decreasing step function of said recorded amplitude voltage" is deemed indefinite and further clarification is required. The claims were examined as best understood.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12, 18, 19 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Zangari et al. (U.S. Publication No. 2003/0033822) in view of Chodacki et al. (U.S. Publication No. 2003/0164368).

Zangari et al. discloses a method for operating a defroster heater (47) that defrosts an evaporator of a refrigeration device (Abstract; pages 1-2; paragraph 9; page 2, paragraph 22; page 3, paragraphs 25-27; see Figures 6-8C), comprising: recording a voltage amplitude of a supply voltage for the defroster heater (pages 1-2; paragraph 9; page 3, paragraph 26); generating a pulsed supply current for the defroster heater (the operation ON/OFF of the defrost heater 47 by the same circuit 51; page 2, paragraph 22; see Figure 6) and supplying the defroster heater with the pulsed supply current for a fixed heating interval (when the same circuit 51 is activated/closed by the driver/microprocessor 85).

With respect to the limitation of claim 19, Zangari et al. discloses a circuit breaker (circuit 51) that is activated by a control signal (driver/microprocessor 85) for supply a current feed to the defroster heater (47).

Zangari et al. disclose all of the limitations of the claimed invention, as previously set forth, except for generating a pulse-duty ratio of the pulsed supply current based upon the recorded voltage amplitude; and the fixed heating interval including a substantial number of cycles of an alternating current provided by the voltage supply.

However, generating a pulse-duty ratio of the pulsed supply current based upon the recorded voltage amplitude is known in the art. Chodacki et al., for example, teach the recording of a voltage amplitude of a power source to a resistive heating element and generating a pulse-duty ratio of a pulsed supply current based upon the amplitude of the recorded voltage amplitude (page 3, paragraphs 24, 27-28; page 4, paragraph 34 – page 5, paragraph 41; see Figures 1, 2). In addition, Chodacki et al. teach the fixed heating interval including a substantial number of cycles of an alternating current provided by the voltage supply (page 4, paragraph 34 – page 5, paragraph 41). Chodacki et al. further teach the advantage of such a configuration provides a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing (page 5, paragraph 43). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the controller having the voltage amplitude of the power supply being input thereto of Zangari et al. with the utilization of the amplitude of voltage of the power supply input to the controller and use thereof to control the pulse-duty ratio of the pulsed current supply of Chodacki et al. in order to provide a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing.

Claims 13-17 and 20-25 stand rejected under 35 U.S.C. 103(a), as best understood, as being unpatentable over Zangari et al. (U.S. Publication No. 2003/0033822) in view of Chodacki et al. (U.S. Publication No. 2003/0164368) as

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applied to claims 12, 18, 19 and 26 above, and further in view of Hickl et al. (U.S. Patent No. 5,416,300).

Zangari et al. in view of Chodacki et al. discloses all of the claimed limitations, as previously set forth, except for generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude; forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude; dividing a value range of the voltage amplitude into a plurality of intervals, for each the interval of the plurality of intervals assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2; assigning a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC; and assigning a pulse-duty ratio of 1 to voltage amplitudes below at least 165 VAC.

However, generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude; forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude; dividing a value range of the voltage amplitude into a plurality of intervals, for each the interval assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2 is known in the art. Hickl et al., for example teach generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude (Abstract; column 2, line 49 – column 3, line 64; see Figures 1, 2); forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude (see Figure 2); dividing a value range of the voltage amplitude into a plurality of intervals (see Figure 2). Hickl et al. further teach the

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advantage of such a configuration provides a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies, thereby reducing cost and space required for the utilization of different voltage power source (column 1, line 29 – column 2, line 29).

In addition, Hickl et al. teach for each of the intervals assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.2 and 1.7 (1st region – $1.4/0.85 \approx 1.65$; 2nd region – $1.15/0.93 \approx 1.24$; 3rd region – $1.1/.9 \approx 1.22$; 4th region – $1.08/0.87 \approx 1.24$; column 6, lines 33-57; see Figure 2). Furthermore, Hickl et al. teach assigning a power output ratio in which the keying ratio is approximately 1.03 for 165 VAC and approximately 0.81 for 150 VAC (see Figure 2)

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Zangari et al. in view of Chodacki et al. with the keyed ratio of input voltages of Hickl et al. in order to provide a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies, thereby reducing cost and space required for the utilization of different voltage power source. To provide each of the intervals assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2 would have been a mere engineering expediency as Hickl et al. clearly teaches the use of different circuit components to attain a certain profile. Similarly, it would have further been obvious to one of ordinary skill in the art at the time of the invention was made to make each of the intervals assigning a fixed pulse-duty ratio and providing a ratio of upper to lower limit of each interval of between 1.1 and 1.2,

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since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In addition, to provide a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC and below at least 165 VAC would have been a mere engineering expediency as Hickl et al. clearly teaches the use of different circuit components to attain a certain keyed ratio duty cycle. It would have further been obvious to one of ordinary skill in the art at the time of the invention was made to make a pulse-duty ratio of 1 to voltage amplitudes below at least 150 VAC and below at least 165 VAC, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

(10) Response to Argument

Whether claims 12-26 fail to comply with the written description requirement under 35 U.S.C. 112, first paragraph.

With respect to appellant's reply/argument that claims 12-26 comply with the written description requirement under 35 U.S.C. § 112, first paragraph, and do not add new matter, the examiner respectfully disagrees. In the instant invention, the examiner can find no original disclosure to utilizing a "voltage amplitude" of a supply voltage as well as values being determined based on a voltage amplitude. The examiner can only find disclosure to the "voltage value" being used (original claims and disclosure). The specification only discloses a "voltage value" being used as basis for generating a pulsed supply current to the defroster heater. A "voltage value" of a "150 VAC" or "165

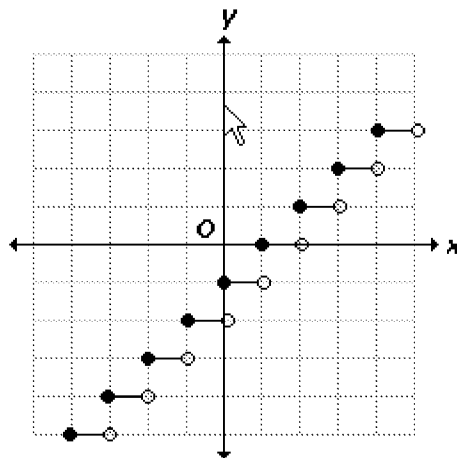
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VAC" can be a frequency, root means square value, pick value, average, period or even magnitude values. It is further asserted that a magnitude value can be based on either frequency, root means square value, pick value, average or period in addition to the potential of being based on amplitude. However, there is no specific or explicit disclosure to the voltage value of a VAC signal being defined or even described as the voltage amplitude or based thereupon and it would not be obvious to one of ordinary skill in the art to make such an assertion without specific original disclosure thereto. Therefore, the 35 U.S.C. 112, first paragraph, new matter rejection stands.

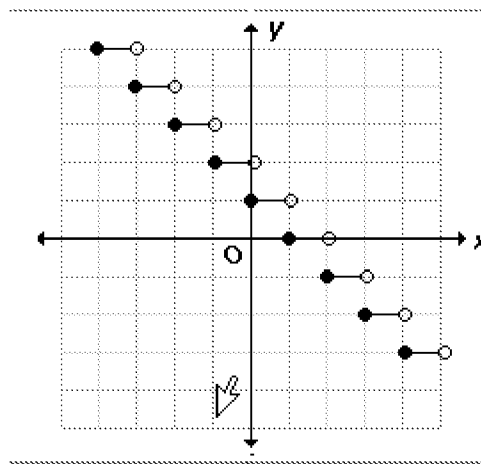
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Whether claims 13-17 and 20-23 are indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention under 35 U.S.C. 112, second paragraph.

With respect to appellant's reply/argument that claims 13-17 and 20-23 are not indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The examiner respectfully disagrees. Claims 13 and 20 explicitly recite the limitation "generating said pulse-duty ratio as a decreasing step function of said recorded amplitude voltage" and variations thereof. The examiner is very aware of what a "step function" is and includes below an elementary step function:



A decreasing step function would be similar to the Figure above, however, have a decreasing slope as in the Figure below:



The examiner examines claims in light of the specification, as set forth in the MPEP. In examining 13-17 and 20-23, the examiner went to the specification to further delineate what exactly a “decreasing step function” is and found only disclosure to Figure 3 included below:

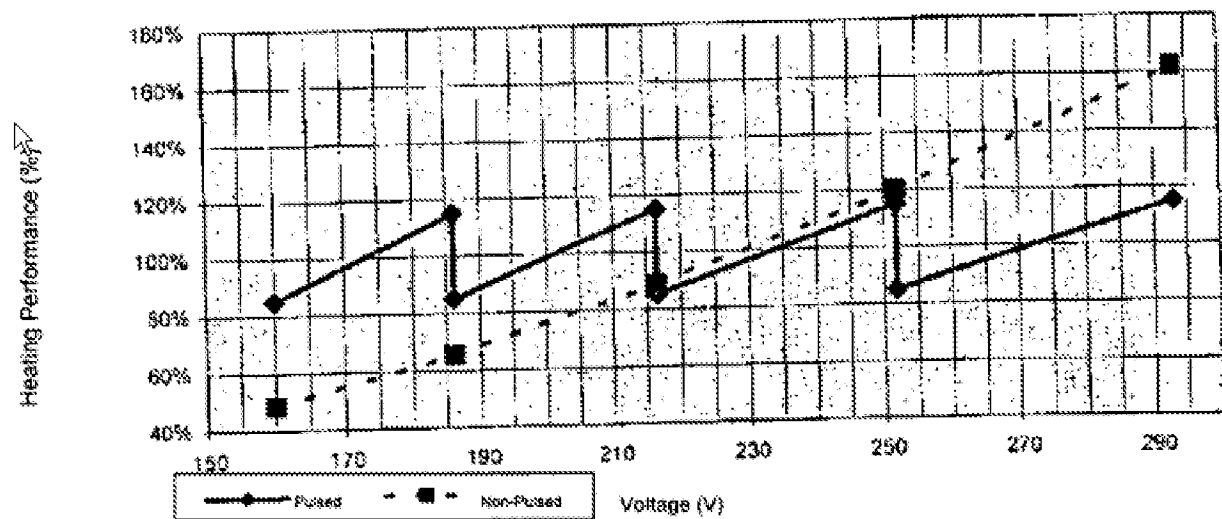


Figure 3 does not disclose “a decreasing step function” and to one of ordinary skill in the art at best, Figure 3 discloses some type of an increasing ramp step function far from a decreasing step function as is known to one of ordinary skill in the art. While the examiner recognizes appellant can be his/her own lexicographer with respect to

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terminology, one of ordinary skill in the art would not in anyway shape or form recognize Figure 3 as “decreasing step function”. Hence, it is deemed unclear, uncertain and indefinite to the examiner to what exactly is a “decreasing step function of the said recorded voltage amplitude” is and how it correlates to the generation of “said pulse-duty ratio”.

Furthermore, the claims (12 and 19), recite a “generating a pulse-duty ratio” step and it is unclear and indefinite to how many generations of a pulse-duty ratio for a pulsed supplied current are occurring. Essentially, the examiner respectfully queried appellant to either further differentiate the limitations or provide proper antecedent basis.

Therefore, the 35 U.S.C. 112, second paragraph, indefinite rejection stands.

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Whether claims 12, 18, 19, and 26 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over the Zangari et al. reference (U.S. Publication No. 2003/0033822) in view of the Chodacki et al. reference (U.S. Publication No. 2003/0164368).

With respect to appellant's reply/argument that claims 12, 18, 19, and 26 are patentable under 35 U.S.C. § 103(a) over the Zangari et al. reference (U.S. Publication No. 2003/0033822) and the Chodacki et al. reference (U.S. Publication No. 2003/0164368), the examiner respectfully disagrees. Appellant's primary argument is whether or not Chodacki et al. is analogous art.

To that degree, it has been held that a prior art reference must either be in the field of appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the appellant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In the instant case, the prior art is reasonably pertinent to the particular problem with which the appellant was concerned as well as in appellant's field of endeavor.

Firstly, appellant's instant invention is a method for operating a heater. Chodacki et al. explicitly disclose a system for regulating voltage to an electrical resistance igniter (Title) which, to one of ordinary skill in the art, is essentially a system for regulating (i.e. controlling) voltage to a heater.

Secondly, appellant's is concerned with **a heater** and providing a pulse duty ratio that results in there being the right amount of heat instead of providing either not

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enough heat when the voltage supply is not enough or provide too much heat when the voltage supply is too much. Chodacki et al. teach the recording of a voltage amplitude of a power source to **a resistive heating element** and generating a pulse-duty ratio of a pulsed supply current based upon the amplitude of the recorded voltage amplitude (page 3, paragraphs 24, 27-28; page 4, paragraph 34 – page 5, paragraph 41; see Figures 1, 2). In addition, Chodacki et al. teach the fixed heating interval including a substantial number of cycles of an alternating current provided by the voltage supply (page 4, paragraph 34 – page 5, paragraph 41). Similarly, Chodacki et al. teaches “the control system, after a predetermined time period has expired, also reduces and regulates the voltage being applied thereafter so the hot surface igniter maintains a fairly consistent operating temperature...”. Chodacki et al. further teach the advantage of such a configuration provides a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing (page 5, paragraph 43). Clearly, Chodacki et al. is concerned with maintaining the temperature of the heater at a relatively constant operating temperature with respect to the supply voltage and one of ordinary skill in the art would look to others faced with maintaining the temperature of the heater at a relatively constant temperature with respect to the supply voltage (see MPEP § 2141.01a). Therefore, the examiner deems Chodacki et al. as analogous and the rejection as set forth previously and above stands.

Furthermore, in response to appellant’s argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be

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established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In the instant case, there is some teaching, suggestion, or motivation to do so found either in the references themselves. Chodacki et al. explicitly teaches the advantage of such a configuration of providing a generation of a pulse-duty ratio of the pulsed supply current based upon the recorded voltage amplitude and the fixed heating interval including a substantial number of cycles of an alternating current provided by the voltage supply provides a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing (page 5, paragraph 43).

Similarly, the examiner asserts that applying a known technique to a known device ready for improvement would yield predictable results. That is, it would have been recognized by one of ordinary skill in the art that applying the known technique taught by Chodacki et al. to the method of operating a defroster heater of Zangari et al. would have yielded predictable results and resulted in an improved system, namely, providing generating a pulse-duty ratio of the pulsed supply current based upon the recorded voltage amplitude in Zangari et al. to provide a means to increase the operational life of the resistance heating element and reduce hardware requirements as well as associated costs such as manufacturing.

Therefore, the examiner has provided a proper *prima facie* case of obviousness, as set forth in MPEP § 2143, and the rejection as set forth previously and above stands.

Whether claims 13-17 and 20-25 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over the Zangari et al. reference, the Chodacki et al. reference, and further in view of the Hickl et al. reference (U.S. Patent No. 5,416,300).

With respect to appellant's reply/argument that claims 13-17 and 20-25 are patentable under 35 U.S.C. § 103(a) over the Zangari et al. reference, the Chodacki et al. reference, and the Hickl et al. reference (U.S. Patent No. 5,416,300), the examiner respectfully disagrees.

To that degree, it has been held that a prior art reference must either be in the field of appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the appellant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In the instant case, the prior art is reasonably pertinent to the particular problem with which the appellant was concerned as well as in appellant's field of endeavor.

Firstly, appellant's instant invention is a method for operating a heater. Hickl et al. explicitly disclose a system for regulating voltage of an electric igniter with an adjustable

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keying ratio (Abstract) which to one of ordinary skill in the art is essentially a system for regulating (i.e. controlling) voltage to a heater via keying ratios.

Secondly, appellant is concerned with providing a pulse duty ratio that results in there being the right amount of heat instead of providing either not enough heat when the voltage supply is not enough or provide too much heat when the voltage supply is too much. Appellant further discloses such control is deemed as “keyed” (page 3, lines 11-25). Hickl et al. teach generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude and with adjustable keying ratio (Abstract; column 2, line 49 – column 3, line 64; see Figures 1, 2); forming at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude (see Figure 2); dividing a value range of the voltage amplitude into a plurality of intervals (see Figure 2). Hickl et al. further teach the advantage of such a configuration provides a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies, thereby reducing cost and space required for the utilization of different voltage power source (column 1, line 29 – column 2, line 29). Similarly, Hickl et al. teach a keying ratio varying technique to provide a “stabilization of the power output converted at the heater (electric igniter 1) because the heating time... remains nearly constant even with great changes in voltage” (column 3, lines 47-64; column 8, claim 4). Clearly, Hickl et al. is concerned with maintaining the heating time of the heater relatively constant to maintain an operating temperature with respect to the supply voltage and one of ordinary skill in the art would look to others faced with maintaining the heating time of the heater relatively

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constant to maintain an operating temperature with respect to the supply voltage (see MPEP 2141.01a). Therefore, the examiner deems Hickl et al. as analogous and the rejection as set forth previously and above stands.

Furthermore, in response to appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In the instant case, there is some teaching, suggestion, or motivation to do so found either in the references themselves. Hickl et al. explicitly teach providing a generation of a pulse-duty ratio as a decreasing step function of the recorded voltage amplitude as well as providing at least at least two discrete values for the step function in a predetermined permissible range of fluctuation of the voltage amplitude (see Figure 2) and dividing a value range of the voltage amplitude into a plurality of intervals (see Figure 2) to provide a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies, thereby reducing cost and space required for the utilization of different voltage power source (column 1, line 29 – column 2, line 29).

Similarly, the examiner asserts that applying a known technique to a known device ready for improvement would yield predictable results. That is, it would have

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been recognized by one of ordinary skill in the art that applying the known technique taught by Hickl et al. to the method of operating a defroster heater of Zangari et al. would have yielded predictable results and resulted in an improved system, namely, providing generating the pulse-duty ratio as a decreasing step function of the recorded voltage amplitude (and variations thereof) in Zangari et al. to provide a means to remove the requirements of transformers, thyristors, interference suppression means for using various higher level power supplies.

Therefore, the examiner has provided a proper *prima facie* case of obviousness, as set forth in MPEP § 2143, and the rejection as set forth previously and above stands.

Conclusion

In conclusion, the claims on appeal are not novel as it pertains to a method of operating a defroster heater. The examiner has provided proper evidence to support a *prima facie* case of obviousness with respect to the rejection(s) asserted above. The examiner respectfully requests that the rejection of the claims be affirmed and that such claims be indicated as not inventive or allowable over the prior art of record.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stephen J Ralis/
Primary Examiner, Art Unit 3742

Conferees:

/Henry Yuen/
Special Programs Examiner, TC 3700

/TU B HOANG/
Supervisory Patent Examiner, Art Unit 3742